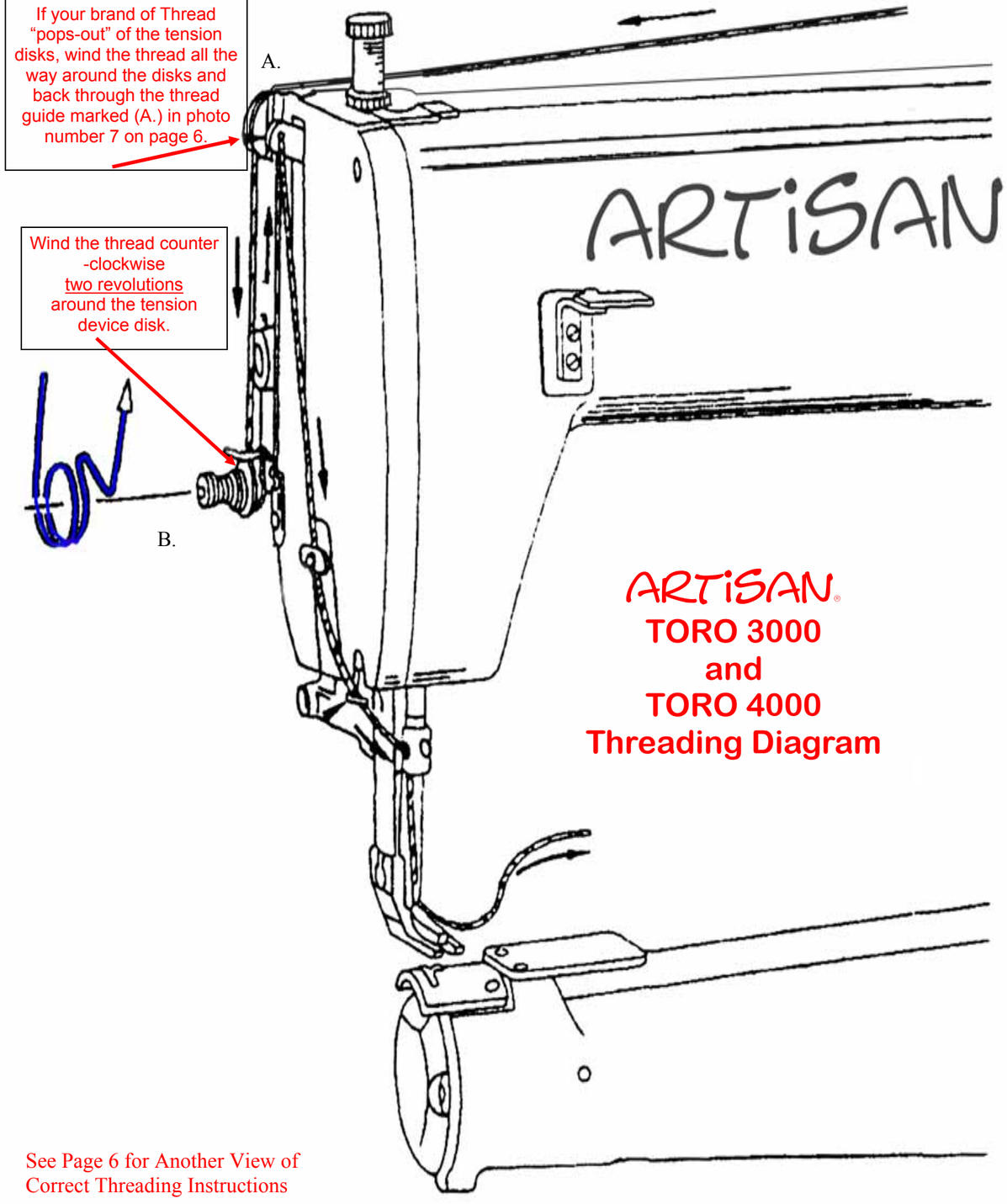
Please make sure that the thread is inserted between the two thread tension disks. If your brand of Thread "pops-out" of the tension disks, wind the thread all the way around the disks and back through the thread guide marked (A.) in photo number 7 on page 6.

Wind the thread counter -clockwise <u>two revolutions</u> around the tension device disk.



ARTiSAN®
TORO 3000 and TORO 4000 Threading Diagram

See Page 6 for Another View of Correct Threading Instructions

ARTiSAN®

TORO-4000 P
with H/D Adjustable
Pedestal Motor Drive

TORO-3000
with EP-Ped
Adjustable
Pedestal Motor Drive

TORO-4000 R
with EP-Ped
Adjustable
Pedestal Motor Drive

TORO-4000 R
with Ped-600
Adjustable
Pedestal Motor Drive

TORO 3000 and TORO 4000

INSTRUCTION and SPARE PARTS MANUAL

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We Strive to Continuously Improve our Machinery. Specifications and features are constantly being updated. Your New TORO Stitcher may look slightly different then as shown in this pamphlet.

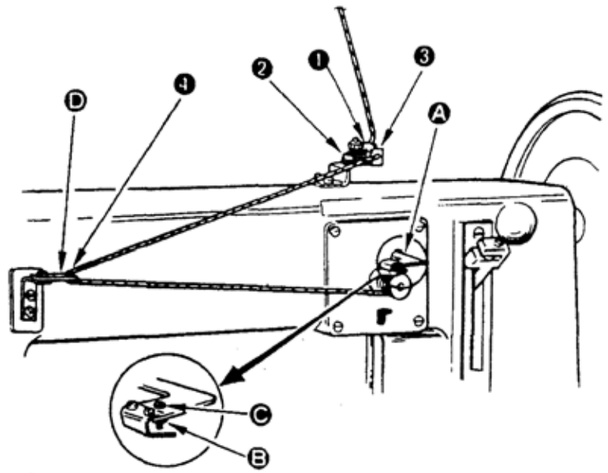
Winding the Bobbin on a TORO-4000 R

1. Raise the presser foot with the hand lifter lever.
2. Insert the bobbin onto the bobbin winder spindle.
3. Thread the winder in the order illustrated and wind the thread four or five turns onto the bobbin.
4. Push the bobbin winder trip latch (A) down. When the machine is operated the spindle will turn and start to wind the bobbin.
5. When the bobbin is fully wound, the trip latch will disengage and the spindle will stop.

To adjust the quantity of thread on the bobbin:

1. Loosen the adjusting screw and nut number (B) and (C.) and turn the screw counterclockwise to decrease the amount of thread on the bobbin and clockwise to increase the quantity of thread wound onto the bobbin.
2. Tighten the locking nut after adjusting for the correct amount of thread to be wound onto each bobbin.

If the bobbin is not winding evenly, move the thread guide (D) either left or right to compensate.
Several Bobbins can be wound while the machine is stitching.

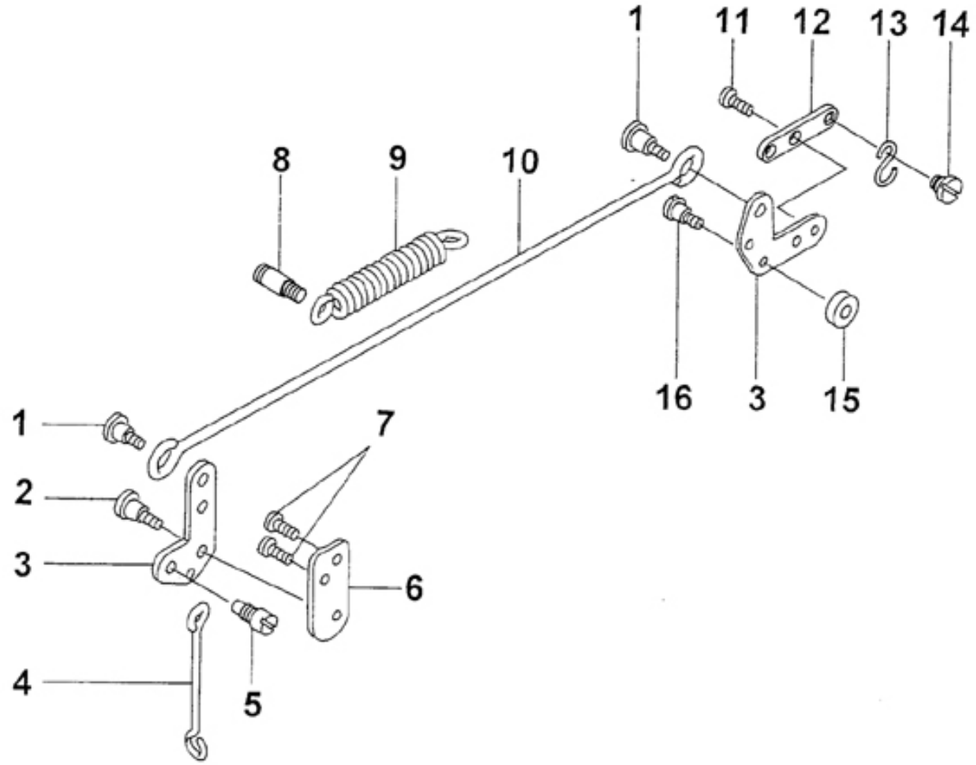


TORO-3000 Bobbin Winder Instructions:

1. Place the bobbin on the spindle. Align the small pin with the hole or slot in the bobbin.
2. Insert the thread into the eye above the bobbin winder tension.
3. Pull the thread around the and through the tension discs.
4. Continue pulling the thread to the bobbin and wrap several turns of thread around the bobbin.
5. Push the Latch up against the center of the bobbin.
6. Operate the machine and the bobbin will begin to fill. Several bobbins can be wound while the machine is in operation.

If the thread is wound too loosely, tighten the tension nut, if too tight, loosen the nut.

9. KNEE LIFTER COMPONENTS



REF.NO.	NOTE	PART NO.	D E S C R I P T I O N	ANT.
1.		SD-0790431-SP	HINGE SCREW D=7.94 H=4.3	2
2.		SD-0790431-SP	HINGE SCREW D=7.94 H=4.3	1
3.		210-62807	PRESSER BAR LIFTING LINK	2
4.		210-62500	PRESSER BAR LIFTING BAR	1
5.		210-62609	HINGE SCREW	1
6.		210-62708	LINK BASE	1
7.		SS-7150740-SP	SCREW 15/64-28 L=7	2
8.		B3413-227-000	SPRING SUSPENSION	1
9.		B1342-591-000	PRESSER BAR LIFTING SPRING	1
10.		211-56005	SIDE CONNECTING BAR	1
11.		SS-7150740-SP	SCREW 15/64-28 L=7	2
12.		211-56104	LINK PLATE	1
13.		211-57607	S-PLUG	1
14.		SD-0800341-SP	HINGE SCREW D=8 H=3.4	1
15.		181-25609	LINK COLLAR	1
16.		SD-0790432-SP	HINGE SCREW D=7.94 H=4.3	1

ARTISAN®

TORO-3000 and TORO-4000

Extra Heavy Duty Cylinder Bed Lockstitch Compound Needle Feed Walking Foot Stitching Machines.

CAUTION.....

READ BEFORE OPERATING THIS MACHINE...

1. Lubricate the Stitcher before operating!
2. Confirm you are plugging the electric motor into the correct rated voltage.
3. Confirm the machine and motor are turning over in a counter-clockwise rotation.
4. Your Artisan TORO machine is normally set up with an SR-2 speed reducer/transmission to controll your stitching speeds and to add additional torque to drive the needle into heavy leathers and fabrics at slow operating speeds.
5. After operating the machine for more than 25 days, if desired, the top stitching speed may be increased to a maximum speed of 800 spm.
6. Keep your hands and all clothing away from the machine when pushing the button to turn the electric motor on.
7. Switch on the Servo Motor and check for the LED light to illuminate.
8. Always switch off the motor when finished sewing. Never leave the motor running while away from the machine.
9. Always switch off the motor before changing needles or adjusting the sewing machine.
10. The machine is a fine tool, not a toy. Do not let children operate the sewing machine.

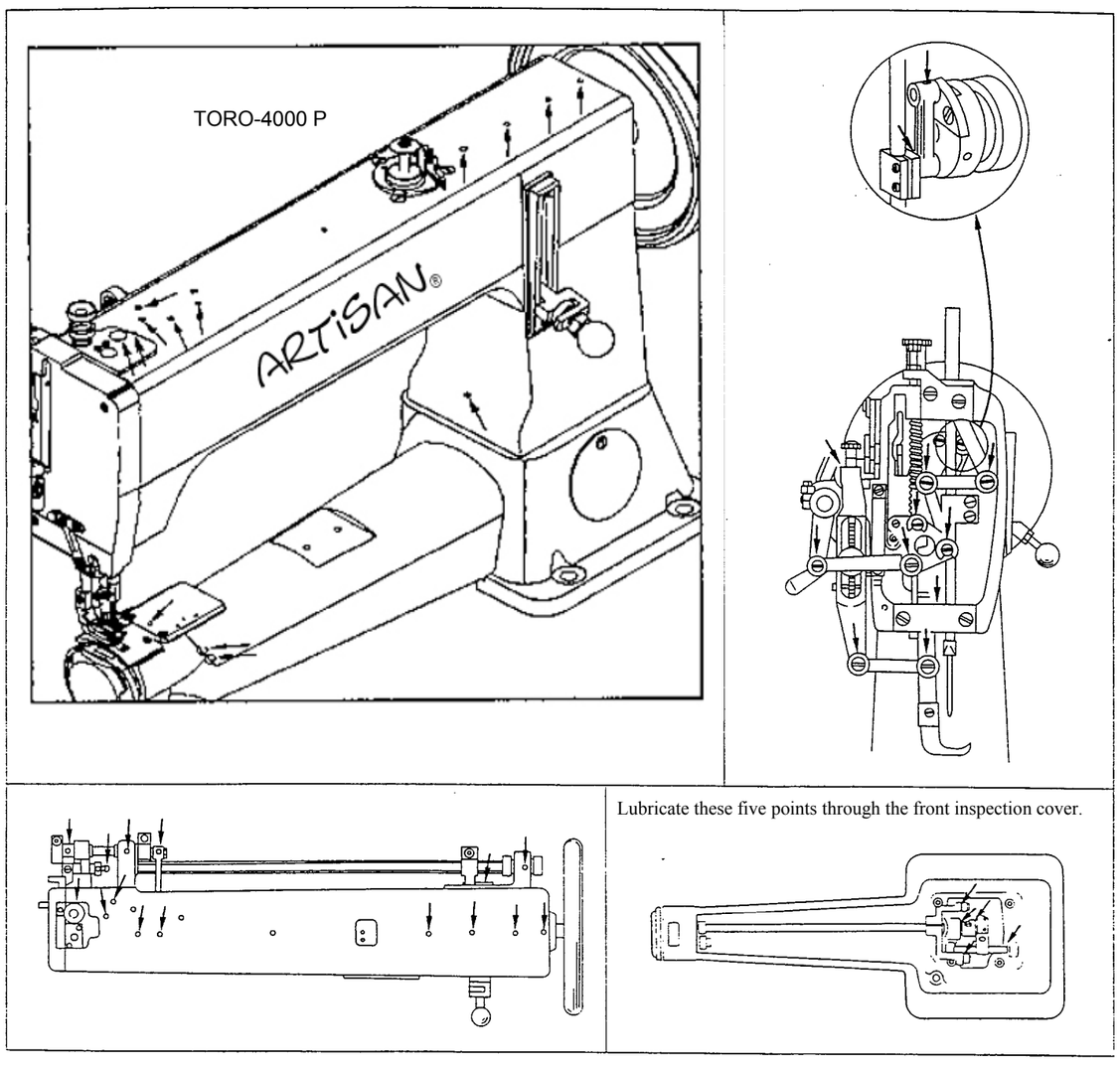
SPECIFICATIONS

USAGE	Saddle Stitching, Tack, Shoes, Boots, Saddle Bags, Harness.	Needle	Schmetz 794 D or 794 S for Leather. For fabric 794
SEWING SPEEDS	Normal up to 600 spm. Max. 800 spm.	Needle Diameter	# 110 to 250 # 18 to 27
STITCH LENGTH	0 to 11 mm	Thread	Z-69 to 415 # 00 to # 6 cord
PRESSER FOOT LIFT	By Hand Lifter 12 mm By Foot Lifter 22 mm	Stitch Adjusting	Sliding Lever with Reverse
THREAD TAKE-UP SYSTEM	Cam type thread take-up lever	Lubrication	Manual Lubrication with Sewing Machine Oil
NEEDLE BAR STROKE	56 mm	Motor	ESM-400 A Electronic DC Servo.

1. CLEANING

Normal stitching operation causes dust, lint, and dirt to build up around the moving parts of your TORO-3000 and 4000. Periodically clean around all the moving parts of the machine. Pay special attention to keeping the shuttle, shuttle race, and throat plate area clean.
Simply wipe off the build-up with a clean cloth or blow off the dirt with compressed air.

2. LUBRICATION



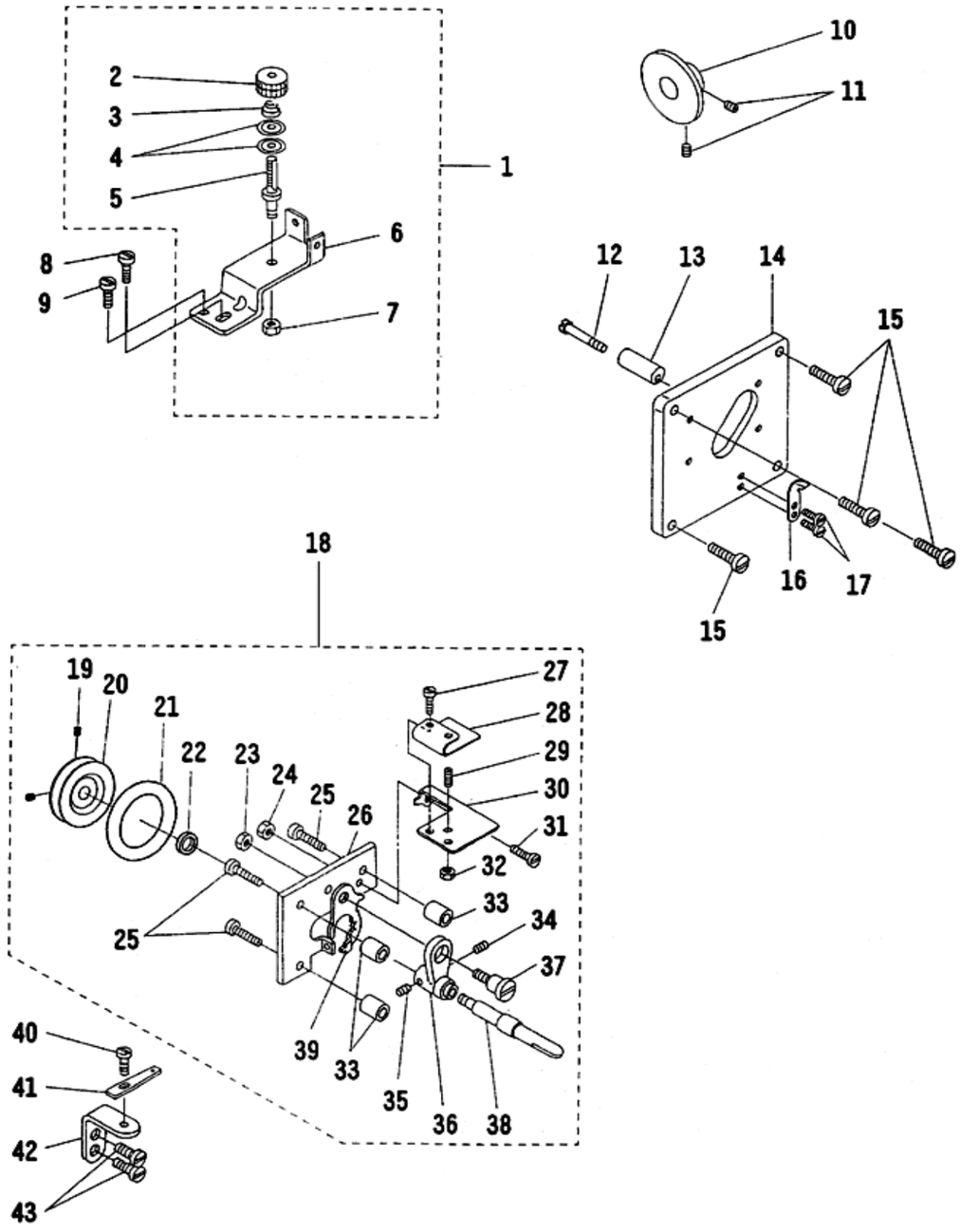
Lubricate these five points through the front inspection cover.

Your new ARTiSAN® TORO-3000 and 4000 was thoroughly lubricated at our factory. However please re-lubricate the machine before putting the new stitcher into service.
The TORO-3000 and 4000 requires lubrication at the above points on a regular basis. Artisan recommends that the machine is oiled about every 7 to 12 hours of actual usage.
We suggest the best time to oil the machine is at the end of your work day. When you begin to use the machine the next time, simply wipe off the excess oil and the dirt or lint at the same time.
If sewing for prolonged periods of time oil the machine about every 5 to 7 hours.

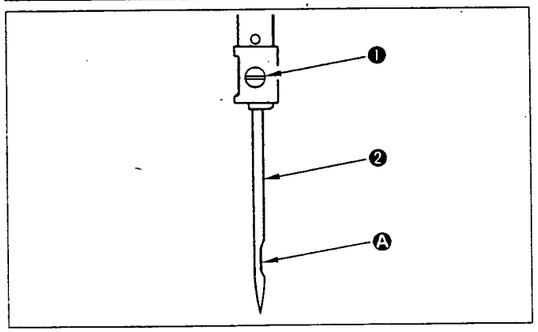
8.

REF.NO.	NOTE	PART NO.	DESCRIPTION	ANT.
1.		210-61759	THREAD WINDER GUIDE BASE ASM.	1
2.		B3125-012-000	THREAD TENSION STUD NUT	1
3.		B3129-012-B00	TENSION SPPING B	1
4.		B3126-012-000	TENSION DISC	2
5.		210-59001	THREAD TENSION POST	1
6.		210-61700	THREAD WINDER GUIDE	1
7.		NS-6680320-SP	NUT 9/32-28	1
8.		SS-7110910-SP	SCREW 11/64-40 L=8.5	1
9.		SS-4080610-SP	SCREW 11/8-44 L=6.4	1
10.		210-61601	FRIOCTION WHEEL	1
11.		SS-8150710-SP	SCREW 15/64-28 L=7	2
12.		SS-7112810-SP	SCREW 11/64-40 L=28	1
13.		210-61403	STOPPER	1
14.		210-42908	THREAD WINDER PLATE	1
15.		SS-7111120-SP	SCREW 11/64-40 L=10.5	4
16.		210-61502	THREAD CUT & CLAMP PLATE	1
17.		SS-6080410-SP	SCREW 1/8-44 L=4	2
18.		210-61056	THREAD WINDER ASM.	1
19.		NS-6120310-SP	NUT 3/16-28	1
20.		B3209-232-000	WASHER	2
21.		B3203-232-000	BOBBIN WINDER WORM WHEEL	1
22.		B3207-158-000	THREAD WINDING SHAFT COLLAR	1
23.		NS-6110310-SP	NUT 11/64-40	1
24.		NS-6110310-SP	NUT 11/64-40	1
25.		SS-7111810-SP	SCREW 11/64-40 L=18	3
26.		B3201-158-000	THREAD WINDER BASE	1
27.		SS-5060410-SP	SCREW 3/32-56 L=3.5	2
28.		210-61205	BOBBIN PRESSURE SPRING	1
29.		D2443-141-E00	ADJUSTING SCREW	1
30.		210-61106	BOBBIN PRESSER	1
31.		SD-0720193-SP	HINGE SCREW D=7.24 H=1.9	1
32.		NS-6080210-SP	NUT 1/8-44	1
33.		B3203-158-000	WASHER	3
34.		B3208-232-000	SPRING	1
35.		A3222-958-000	BOBBIN WINDER SPPING, LONG	1
36.		B3204-232-000	BOBBIN WINDER FRAME	1
37.		B3205-232-000	HINGE SCREW,	1
38.		210-61007	THREAD WINDER SHAFT	1
39.		B3206-232-000	BOBBIN WINDER TENSION BRACKET	1
40.		SS-7090710-SP	SCREW 9/64-40 L=6.8	1
41.		B2510-158-000	THREAD WINDER THREAD GUIDE	1
42.		210-61908	GUIDE BRACKET	1
43.		SS-7151120-SP	SCREW 15/64-28 L=11	2

8. BOBBIN WINDER AND THREAD GUIDE COMPONENTS



3. HOW TO INSTALL THE NEEDLE

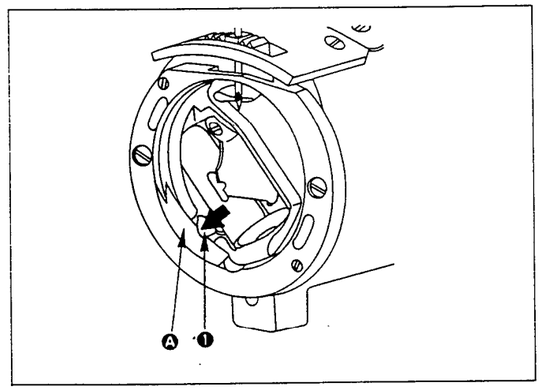


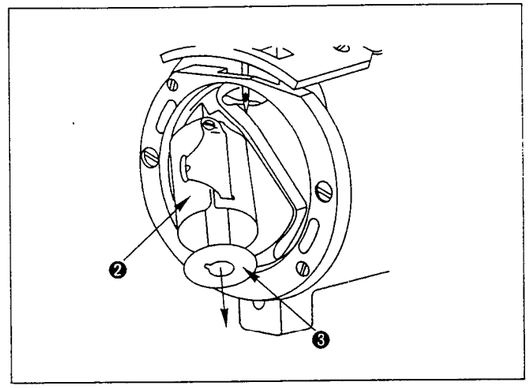
SWITCH OFF THE MOTOR BEFORE REMOVING OR INSERTING A NEEDLE

Artisan recommends that you use only "SCHMETZ" brand Needles.
For Leather use size; **794 D, 794 S, 794 LR**
For Canvas, Nylon and Fabrics use size: **794**

1. Turn the hand wheel counter-clockwise and raise the needle bar to its highest position.
2. Loosen the needle set screw #(1) remove the old needle and insert a new needle #2 into the needle bar. Push it up into the hole as far as it will go.
3. Remember to locate the needle scarf #(A) towards the hand wheel and the long groove of the needle to the left side.
4. Securely tighten the needle set screw #(1).

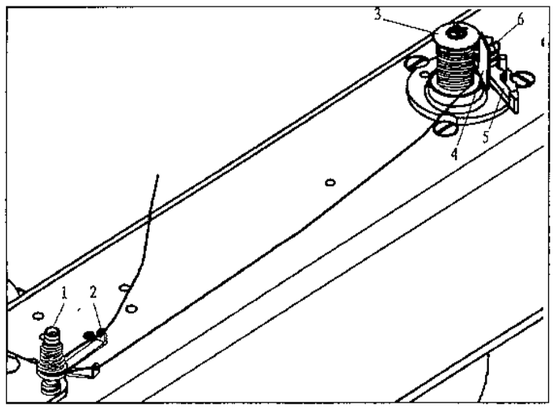
4. HOW TO TAKE OUT THE BOBBIN





1. Turn the handwheel counter-clockwise until the needle reaches its lowest position.
2. Place your open left hand under the Shuttle area to catch the bobbin.
3. Depressing the retaining latch #(1) will open the bobbin case.
4. Remove the bobbin being careful to leave the light weight beehive shaped bobbin push spring inside the bobbin case.

5. HOW TO WIND A BOBBIN THREAD of a TORO-4000 P



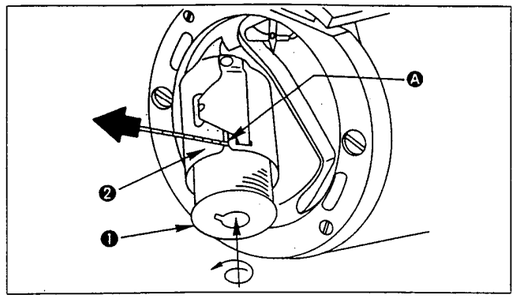
1. Push the bobbin #(3) onto the bobbin winder shaft until it seats.
2. As pictured, thread the sewing thread through the thread guide #(2) and around the tension post counter-clockwise, once, then back out through the front thread guide.
3. Wind the thread around the bobbin several times and push the lever #(5) to the left to engage the bobbin winder.

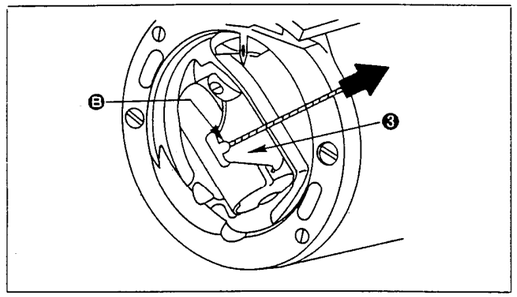
<u>As you are sewing the bobbin will begin to fill, when the bobbin is filled, the latch will disengage and the bobbin spindle and bobbin will stop.</u>

4. Loosen screw #(6) and adjust the bracket on lever #(5) to adjust the fill amount on the bobbin.

See Page 31 for bobbin winding instructions for the TORO-3000 and TORO-4000 R machines.

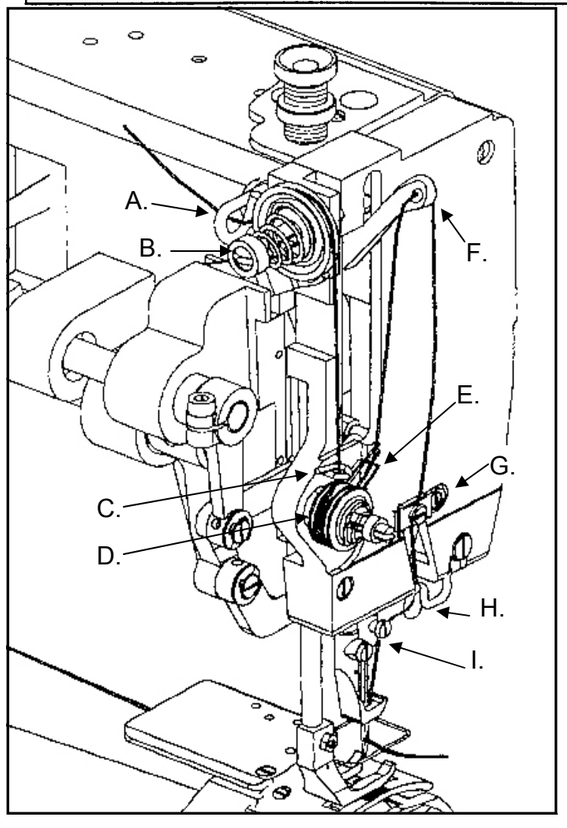
6. HOW TO INSTALL THE BOBBIN





1. Pull approximately 3 to 4 inches of thread off the bobbin and insert the new bobbin into the bobbin case so that when turning the bobbin turns counter-clockwise.
2. Pass the thread through the slot #(A) of the bobbin case and pull the thread until the thread passes under the bobbin thread tension adjusting spring and rests in the groove as pictured.
3. Leave at least 3to 5 inches of thread remaining and hanging out beyond the bobbin case.
4. Turn the handwheel counter-clockwise, with the needle threaded one revolution, and the bobbin thread will be pulled up through the needle plate.

7. HOW TO THREAD THE MACHINE HEAD (See Back Page for Greater Detail)



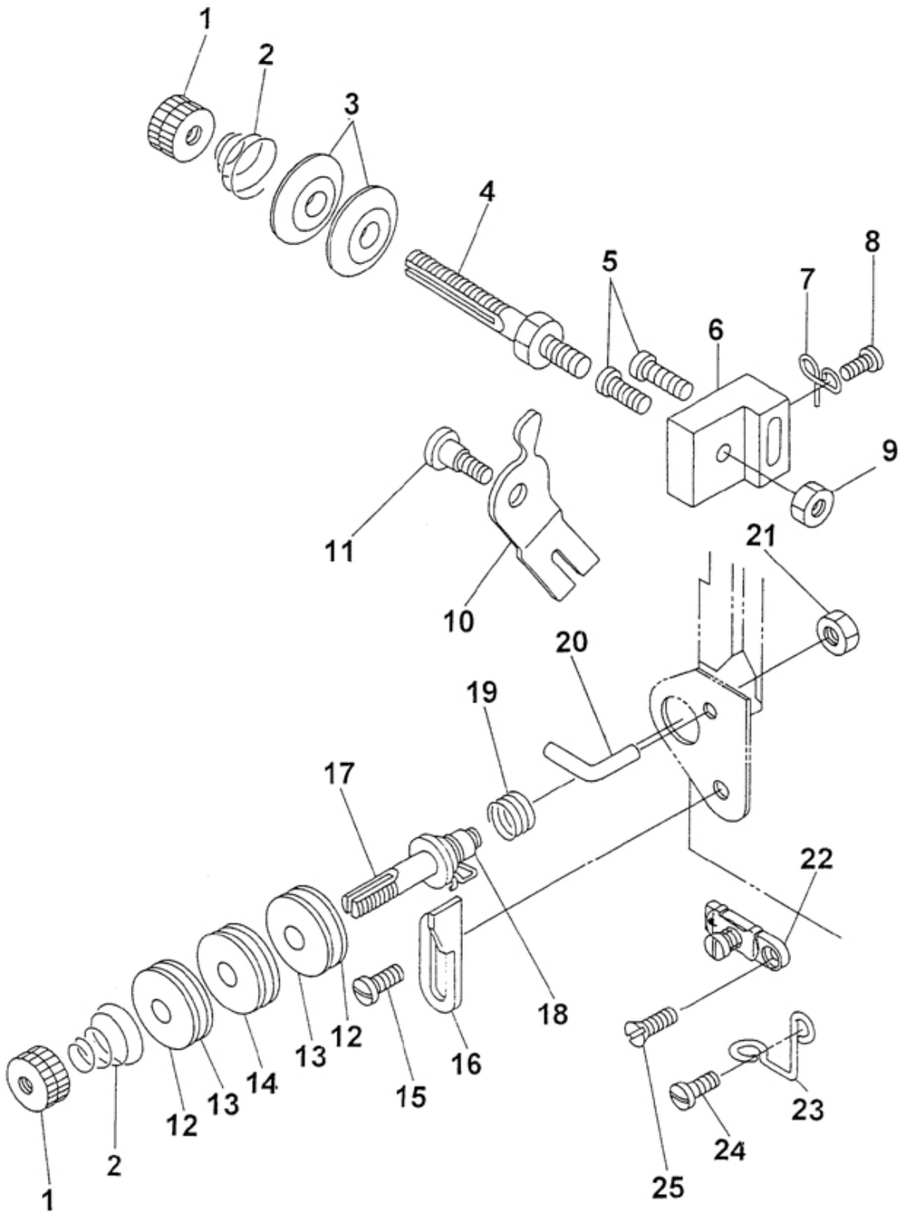
1. Place a spool of thread on the sewing machine thread stand which is normally located on the right hand rear corner of the sewing machine table top.
2. Pull some thread off the spool and thread though the eyelet directly over the spool on the upper horizontal lever of the thread stand.
3. Pass the thread directly through the first thread guide #(A) of the machine before the upper tension post #(B).
4. Pull the thread over the top and between the two tension disks of the upper tension assembly #(B).
5. Then pull additional thread through the thread guide #(C).
6. Wind the thread in a counter-clockwise direction around the main tension roller #(D) two complete revolutions and again through thread guide #(C).
7. Then, thread through the check spring #(E) , located slightly downward and to the right of the main tension #(C).
8. Pull additional thread off and up and through the eyelet of the "Take-up" lever #(F) from the left side to the right side.
9. Then pull more thread down and pass the thread through the middle thread guide #(G) to the left side of the screw only.
10. Continue through the lower casting thread guide #(H).
11. Then through the Needle Bar thread guide #(I).
12. Lastly, pass the thread through the eye of the needle from the left side of the needle to the right side of the needle towards the handwheel. About 5 or 6 inches of thread should extend beyond the needle.
13. Make one counter-clockwise revolution of the handwheel and pick up the bobbin thread above the needle plate.
14. **Please Hold the Bobbin and Needle Thread taughtly in one hand while beginning to stitch the first two or three stitches. Then release and trim the excess thread.**

See Back Page for Greater Detail

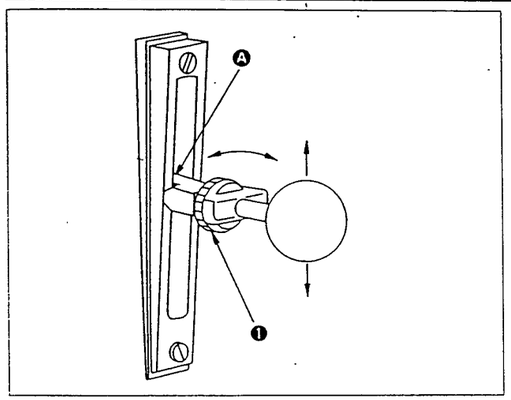
7.

REF.NO.	NOTE	PART NO.	DESCRIPTION	ANT.
1.		B3125-012-000	THREAD TENSION STUD NUT	2
2.		210-59100	THREAD TENSION SPRING	2
3.		B3126-012-000	TENSION DISC	2
4.		210-59001	THREAD TENSION POST	1
5.		SS-7111120-SP	SCREW 11/64-40 L=10.5	2
6.		210-59209	THREAD TENSION POST BRACKET	1
7.		210-59308	THREAD TENSION GUIDE	1
8.		SS-7090710-SP	SCREW 9/64-40 L=6.8	1
9.		NS-6680320-SP	NUT 9/32-28	1
10.		210-59407	THREAD RELEASING PLATE	1
11.		SD-0600321-SP	HINGE SCREW D=6 H=3.2	1
12.		210-60207	FELT SUPPORT PLATE	2
13.		210-60108	WHEEL FELT	2
14.		210-60009	THREAD TENSION WHEEL	1
15.		SS-7090610-SP	SCREW 9/64-4 L=6	1
16.		210-59803	SPRING SUPPORT PLATE	1
17.		210-59902	THREAD TENSION WHEEL POST	1
18.		210-59605	SPRING A	1
19.		210-59704	THREAD TAKE-UP SPRING GUIDE	1
20.		210-59506	SLACK THREAD GUIDE	1
21.		NS-6150310-SP	NUT 15/64-28	1
22.		D1129-141-EA0	ARM THREAD GUIDE BOTTOM ASM.	1
23.		B1131-562-000	FRAME THREAD GUIDE, LOWER	1
24.		SS-7090710-SP	SCREW 9/64-40 L=6.8	1
25.		SS-1090410-SL	SCREW 9/64-40 L=4	1

7. TENSION POST COMPONENTS



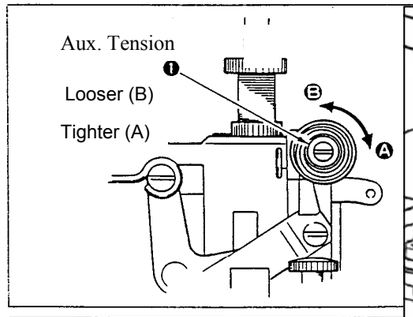
8. ADJUSTING THE STITCH LENGTH AND REVERSE STITCHING

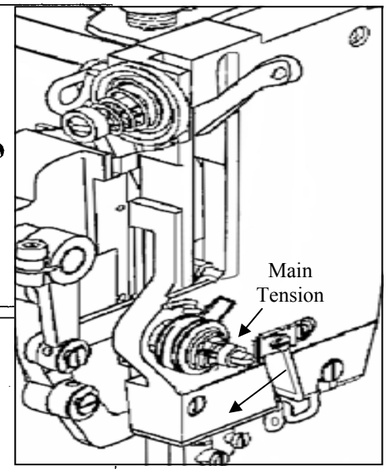


To Adjust the Stitch Length

1. Turn the adjuster nut #(1) counter-clockwise and push the handle in a downward direction for a longer stitch length.
1. For a shorter stitch length raise the handle and then turn the adjuster nut #(1) to lock in the handle.
2. A zero stitch length is in the middle of the slot. The longest stitch length is at the bottom of the slot located below #11 stamped on the face of the guide.
4. Pull the handle upwards to stitch in reverse. When the forward stitch length and the adjuster nut are set correctly, the machine will sew in an equal distant reverse stitch length.
5. To correctly back stitch in the same needle penetration holes; stop the machine with the needle down, then raise the needle approximately 1/4" upwards, pull the reverse handle all the way up, then make several stitches in reverse.
6. To sew forward, push the handle all the way down and sew.

9. THREAD TENSION





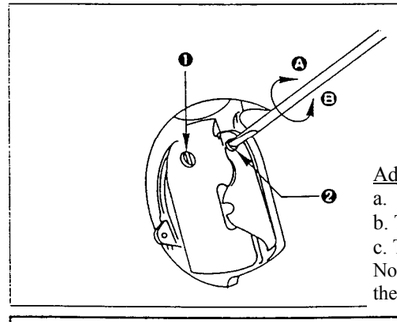
Adjusting the Needle Thread Tension:

a. Turn the nut on the end of the Aux. Tension shaft in a clockwise direction to increase thread tension in small amounts #(A)

b. Rotate the nut counter-clockwise to decrease the thread tension. #(B)

c. For a greater amount of thread tension rotate the nut on the main tension device in a clockwise direction. To loosen rotate the nut counter clockwise.

If you have thread loops on the bottom side of your work, tighten the main tension. If the thread knot is on the top side of the work loosen the main tension. For minor adjustments adjust with the aux. tension.



Adjusting the Bobbin Thread Tension:

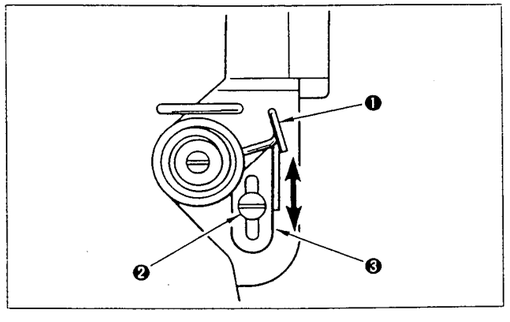
a. Loosen the locking set screw #(1) with a small screw driver.

b. Turn the spring tension adjusting screw #(2) clockwise for greater thread tension.

c. Turn the adjusting screw #(2) counter-clockwise to decrease the thread tension.

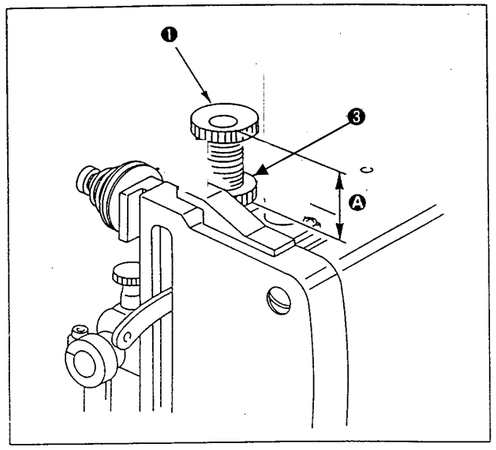
Normally one does not need to re-adjust the bobbin case thread tension unless one changes the sewing thread to a very small diameter or size.

10. THE THREAD TAKE-UP SPRING



The Standard stroke of the thread take up spring, commonly called the check spring #(1) is from 8 to 10 mm or about 3/8".
Normally the stroke or spring tension does not require re-adjustment.

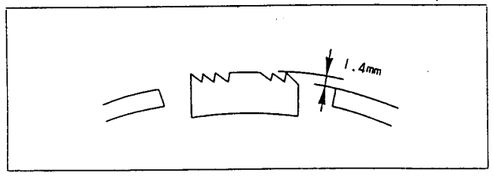
11. ADJUSTING THE PRESSER FOOT PRESSURE



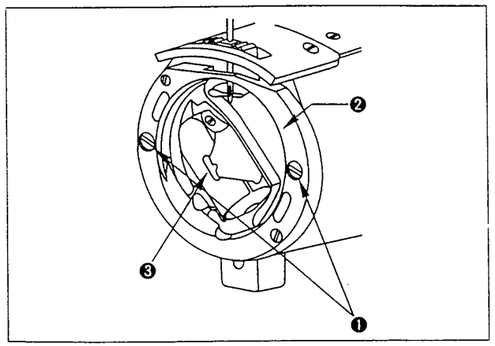
1. The outside presser foot pressure is adjusted by loosening nut #(3).
2. To increase the holding capacity of the Outside presser foot, turn the regulator #(1) clockwise.
3. To reduce the holding pressure, turn the regulator Counter-clockwise. Be care not to fully unscrew the regulator. It is spring loaded and will “pop” out.
4. Tighten the locking nut #(3).

The standard height of the presser foot regulator #(1) from the casting to the top of the regulator screw is about 5/8” to 3/4”.

12. ADJUSTING THE HEIGHT OF THE FEED DOG



For Leather Stitching:
The Feed Dog of the TORO-3000 is smooth, (without teeth).
The TORO-4000 R and TORO 4000 P use a different system without a feed dog.

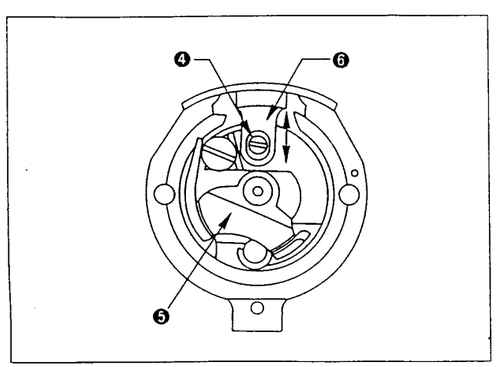


To adjust the height of the feed dog:
Either of the two methods are possible.

1. Open the bobbin case to reveal the feed dog attaching screw.
2. Loosen the screw #(4) and move the feed dog up or down as required.
3. Re-tighten the fed dog attaching screw.

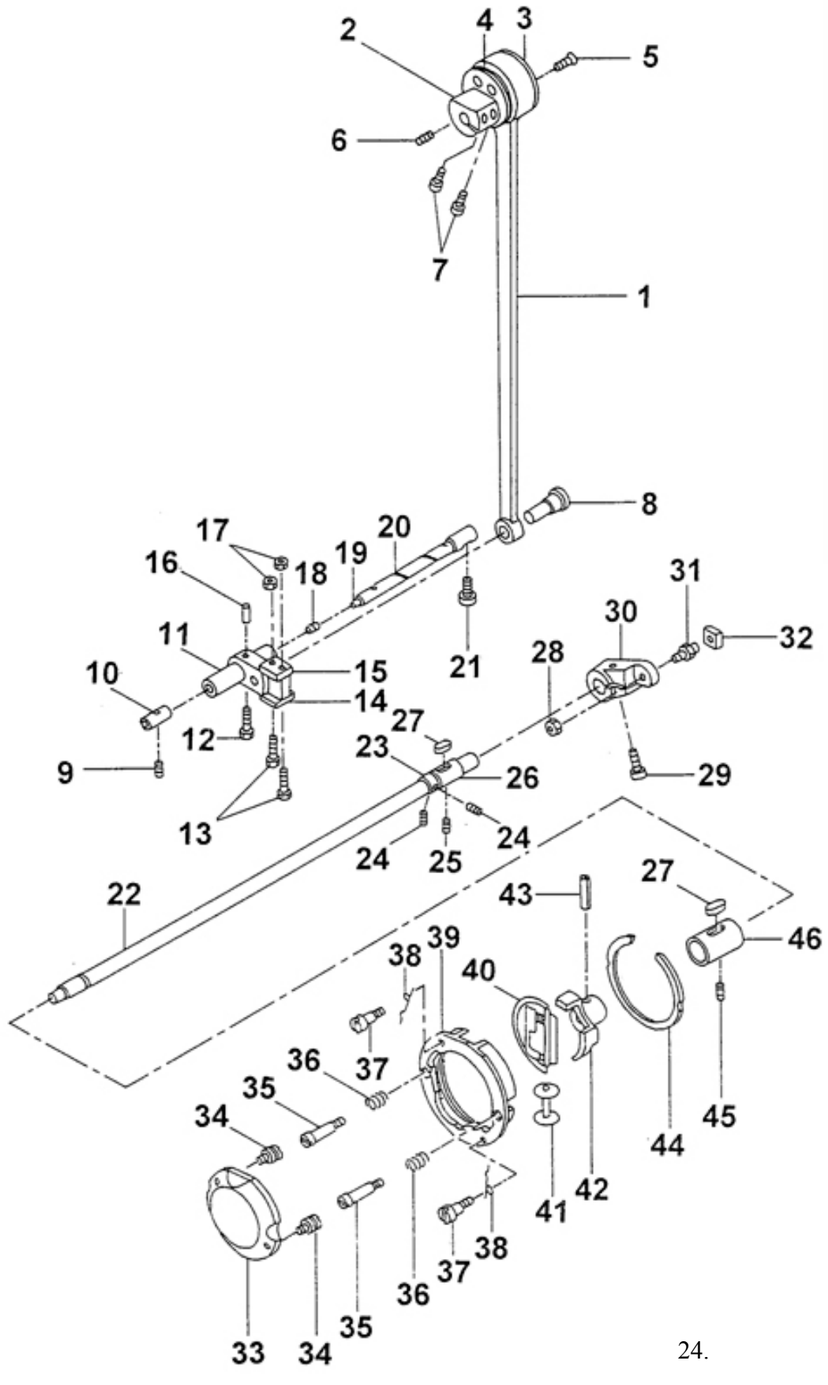
OR a second method is to do the following:

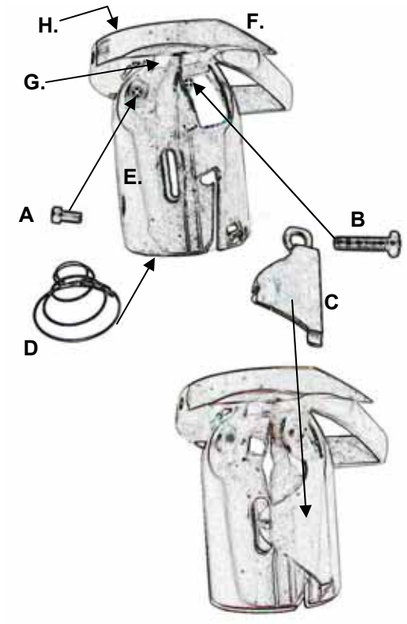
3. Loosen and remove the two screws and small springs #(1) that hold the oscillating shuttle/bobbin case in place.
4. Remove the shuttle race and bobbin case from the casting and reveal the feed dog attaching screw.
5. Remove the Feed Dog attaching screw and Feed Dog to install any of the following except the standard needle plate.
   Slotted Needle Plate (A) #43332
   Stirrup Needle Plate (B) #43333
   Holster Needle Plate (C) #43334
   Standard Needle Plate (D) #43337



REF.NO.	PART NO.	DESCRIPTION	ANT.
1.	210-55504	CONNECTING ROD	1
2.	210-55603	CON-ROD ECCENTRIC CAM	1
3.	210-55702	CAM SLIDE PLATE	1
4.	210-57609	CAGE & ROLLER	1
5.	SS-2110920-TP	SCREW 11/64-40 L=8.5	2
6.	SS-8151550-SP	SCREW 15/64-28 L=15	1
7.	SM-6081802-TP	SCREW	2
8.	210-57203	CON-ROD PIN	1
9.	SS-8150750-SP	SCREW 15/64-28 L=7	1
10.	211-54109	ROCK SHAFT BUSHING	1
11.	210-55801	OSCILATING ROCK SHAFT	1
12.	SS-7621510-SP	SCREW	1
13.	210-57708	SCREW	2
14.	210-57005	SLIDE PLATE A	1
15.	210-57104	SLIDE PLATE B	1
16.	210-57302	CON-ROD PIN WEDGE	1
17.	NS-6110420-SP	NUT 11/64-40	2
18.	TA-0290301-MO	PLUG 2.9X3.2X3	1
19.	CQ-3030000-00	OIL WICK	1
20.	211-54000	HINGE SCREW	1
21.	SS-6151142-TP	SCREW 15/64-28 L=10.5	1
22.	211-54307	HOOK CRIVING SHAFT	1
23.	CS-1471012-SH	THRUST COLLAR D=14.72 W=10	1
24.	SS-8660330-SP	SCREW 1/4-40 L=3.0	2
25.	SS-8151550-SP	SCREW 15/64-28 L=15	1
26.	211-54505	DRIVING SHAFT BUSHING, REAR	1
27.	B1806-038-000	OIL FELT	2
28.	NS-6680320-SP	NUT 9/32-28	1
29.	SM-6081802-TP	SCREW	1
30.	211-54208	HOOK DRIVING SHAFT CRANK	1
31.	210-56304	SLIDE BROCK STUD	1
32.	210-56205	CRANK SLIDE BLOCK	1
33.	211-54802	HOOK COVER	1
34.	211-55007	HOOK COVER SCREW	2
35.	210-57906	SCREW	2
36.	210-57500	HOOK COUNTER SPRING	2
37.	SD-0260271-SP	HINGE SCREW D=2.60 H=2.7	2
38.	211-54901	HOOK COVER SPRING	2
39.	211-54703	SHUTTLE RACE BODY	1
40.	210-41850	OSCILLATING SHUTTLE HOOK	1
41.	210-57401	BOBBIN	1
42.	211-63001	SHUTTLE DRIVER	1
43.	PT-0401800-SO	TAPERED PIN 4.0X18	1
44.	211-55106	SPACER #1thru 5	1
45.	SS-8151550-SP	SCREW 15/64-28 L=15	1
46.	211-54406	DRIVING SHAFT BUSHING, FRONT	1

6. Hook Driving Shaft Components

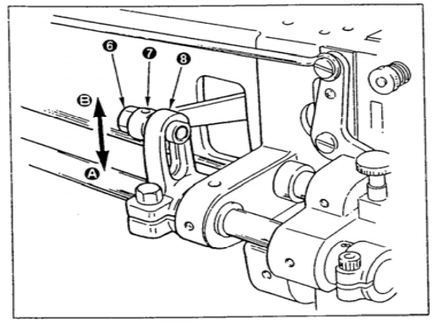




Shuttle Hook Parts

A. GS 184
Locking Set Screw.
B. GS 164
Thread Tension Adjusting Screw.
C. GW 113
Thread Tension Spring.
D. GW 114
Bobbin Push-out Spring.
E. GN 115
Bobbin Case Body.
F. GN 112
Shuttle Body.
G. GW 112
Bobbin Case Opening Spring.
H. GN 114
Bobbin Case Body Latch.
I. GS 120
Bobbin Case Body Latch Screw.

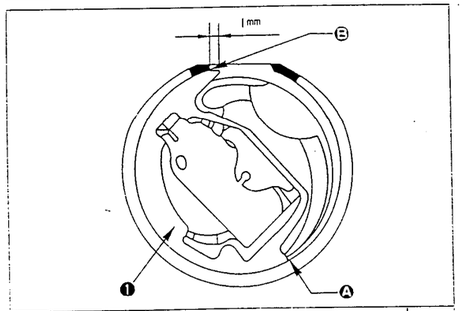
13. WALKING FOOT HEIGHT ADJUSTMENT



To Adjust the height of the walking feet:

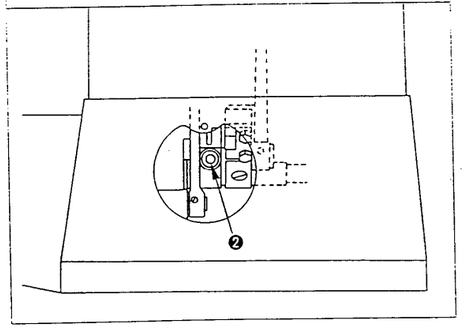
1. Loosen the nut #(6) and move the lever #(7) up to Decrease the walking foot height. (B)
2. Move the lever #(7) down in slotted bracket #(8) to Increase the walking foot height. (A)
3. Tighten the nut #(6) after completing the adjustment.

14. ADJUSTING THE NEEDLE-TO-SHUTTLE RELATIONSHIP



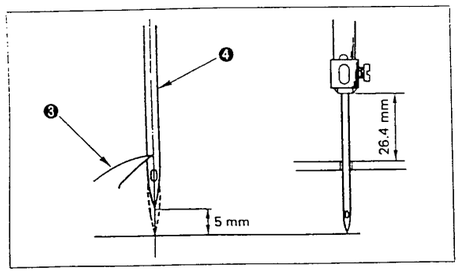
Normal timing adjustment of the shuttle hook.

1. Turn the handwheel counter-clockwise until the oscillating shuttle hook is positioned to the fullest most left travel.
2. The point of the oscillating shuttle hook (shuttle or hook) Should then protrude exactly 1 mm or a little more than 1/32" beyond the end of the shuttle race casting #(B).



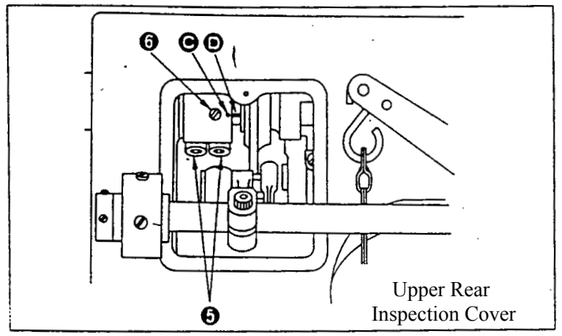
To Adjust the position of the oscillating shuttle hook.

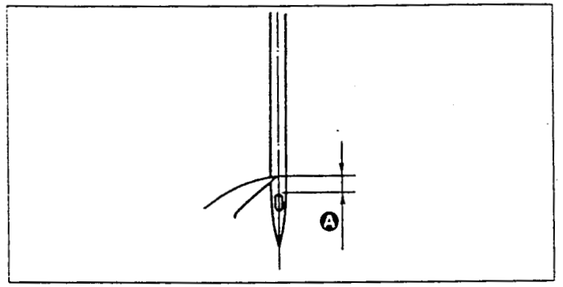
1. Rotate open the front inspection plate cover; located under the stitch length regulator on the front of the machine casting.
2. Insert an allen wrench into the adjusting screw #(2). Loosen the screw slightly and move the shuttle hook forward or back to align the shuttle hook correctly.
3. Remember to firmly tighten the screw #(2) when you have accomplished the adjustment.

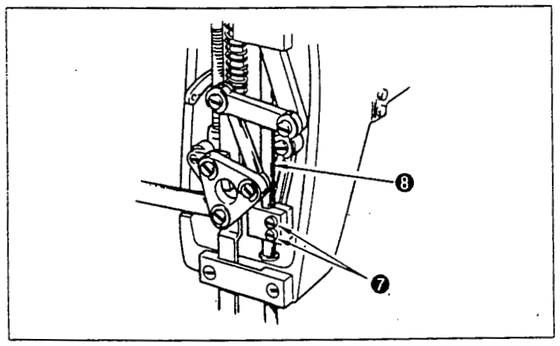


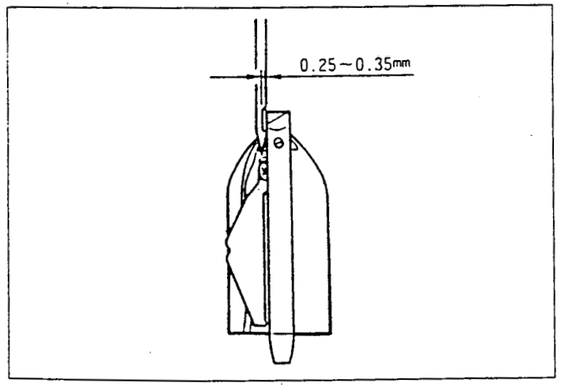
To adjust the needle bar height and timing relationship:

1. Turn the handwheel counter-clockwise until the needle is at its lowest position (bottom dead center).
2. Continue turning the handwheel and raise the needle exactly 5 mm or 3/16" up from "bottom dead center". The point of the shuttle hook #(3) should be exactly bisecting the center of the needle, approximately in the center of the needle scarf.
3. At this point, when the stitch length is set to "0", the bottom of the needle bar should be exactly 26.4 mm above the top surface of the standard needle plate #(D).









To adjust the position of the needle and shuttle

1. Loosen screw (B) ❺ .
2. Loosen screw (A) ❻ , and adjust so that marker dot ⓒ engraved on the eccentric cam of the vertical rod is aligned with marker line ⓓ engraved on the main shaft. Then, tighten screw ❻ .
3. Turn the handwheel toward you, and check the lifting amount of the needle bar.
4. After the adjustment, securely tighten screws ❺ and ❻ .

The above adjustments are for stitching normal fabrics and do not apply to stitching heavy leathers for the TORO-3000 or 4000 R. Leather machines are specially adjusted for each application. The standard adjustments are only a starting point.

★ Height of the needle bar

Set the needle bar height on the TORO-3000, 4000 R or 4000 P as #(A). The point of the shuttle hook is 5 mm above the eye of the needle on the rise of the needle.

To adjust the height of the needle bar:

1. Turn the handwheel and stop turning it when the blade point of the shuttle is aligned with the center of needle.
2. Loosen screws ❼ .
3. Adjust the height by moving needle bar ❽ up and down.
4. After adjustment has been completed, firmly tighten screws ❼ .

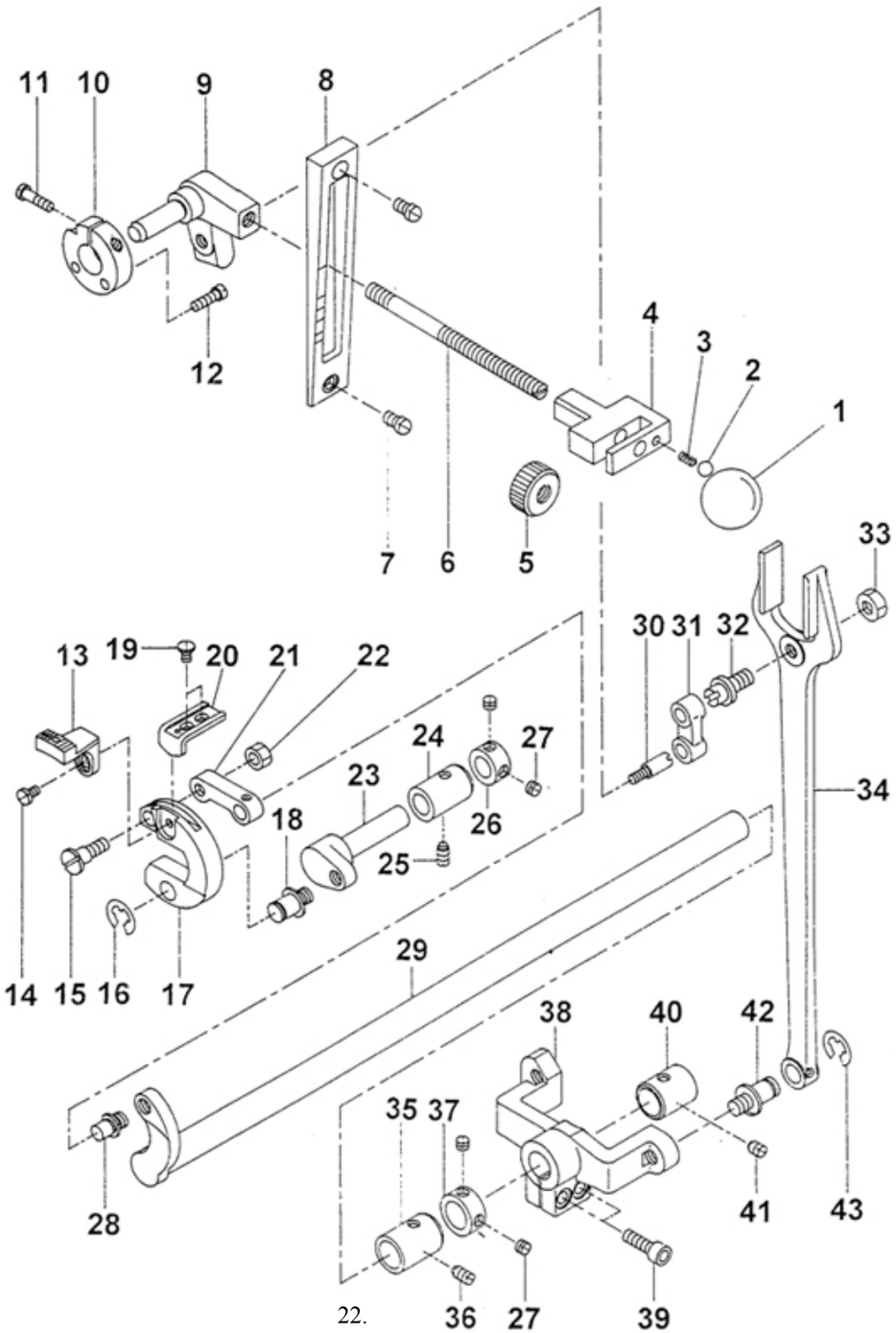
★ The needle-to-shuttle clearance

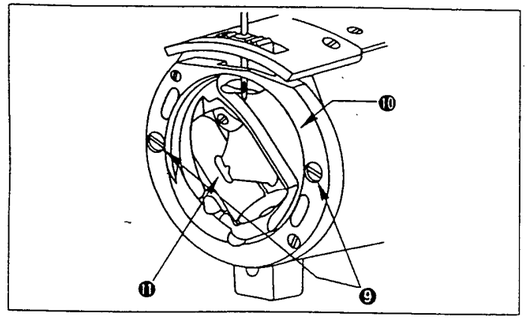
The clearance between the recess in the needle and the blade point of the shuttle has already been adjusted to 0.25 ∿ 0.35 mm.
Point of the shuttle has already been adjusted to 0.35 mm.
Adjust the clearance between the needle and the shuttle by replacing the shuttle race back.
(The shuttle race back comes in six different thickness in addition to the standard thickness.)

5.

.NO.	NOTE	PART NO.	D E S C R I P T I O N	ANT.
1.		210-54507	LEVER GRIP	1
2.		210-54903	BALL	1
3.		210-54804	SPRING	1
4.		210-54606	LEVER	1
5.		210-54705	NUT	1
6.		210-54408	LEVER SHAFT	1
7.		SS-7150940-SP	SCREW 15/64-28 L=9	2
8.		211-52905	SIDE COVER	1
9.		211-52806	FEED REGULATOR	1
10.		211-53903	SUPPORT PLATE	1
11.		SS-6621840-SP	SCREW 3/16-32 L=18.0	1
12.		SS-6121210-SP	SCREW 3/16-28 L=15.5	2
13.		211-62300	FEED DOGK	1
14.		SS-7110840-SP	SCREW 11/64-40 L=7.8	1
15.		SD-0790801-SP	HINGE SCREW D=7.94 H=8	1
16.		RE-0800000-KO	E-RING	1
17.		211-51907	FEED BAR	1
18.		210-26901	HINGE SCREW	1
19.		SS-6110610-TP	SCREW 11/64-40 L=6	2
20.		211-53705	FEED BAR PRESSURE	1
21.		211-52004	FEED BAR LINK	1
22.		NS-6160520-SP	NUT 1/4-24	1
23.		211-52103	DRIVING SHAFT	1
24.		211-53606	DRIVING SHAFT MEAL	1
25.		SS-8151150-SP	SCREW 15/64-28 10.5	1
26.		CS-1111019-SH	THRUST COLLAR D=11.11 W=10	1
27.		SS-8660330-SP	SCREW 1/4-40 L=3.0	4
28.		211-53804	HINGE SCREW	1
29.		211-52251	FEED ROCKER SHAFT ASM.	1
30.		B1617-241-H00	HINGE SCREW, A	1
31.		B1619-241-H00	FEED CONNECTING LINK	1
32.		B1618-241-H00	HINGE SCREW, B	1
33.		NS-6680410-SP	NUT 9/32-28	1
34.		211-52707	ROD	1
35.		211-52400	BUSHING, FRONT	1
36.		SS-8151150-SP	SCREW 15/64-28 L=10.5	1
37.		CS-1471012-SH	THRUST COLLAR D=14.72 W=10	1
38.		211-62003	FEED ROCK SHAFT CRANK	1
39.		SM-6061802-TP	SCREW M6 L=18	2
40.		211-52509	BUSHING, REAR	1
41.		SS-8150750-SP	SCREW 15/64-28 L=7	1
42.		B1424-158-000	HINGE SCREW	1
43.		RE-0700000-K0	E-SHAPED SNAP RING (7MM)	1

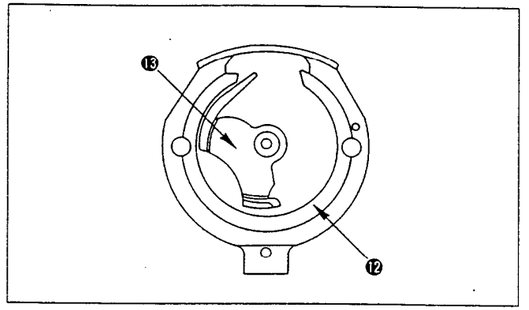
5. FEED MECHANISM COMPONENTS



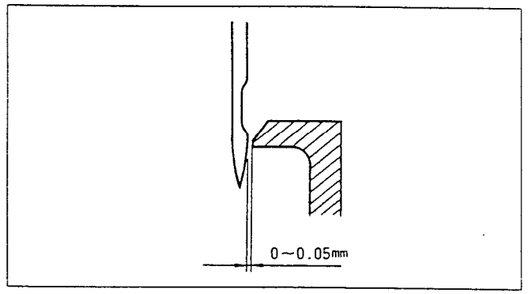


To replace the shuttle race back,

1. Remove two screws ⑨ in the shuttle race, remove shuttle race ⑫ , and remove shuttle ⑪ .

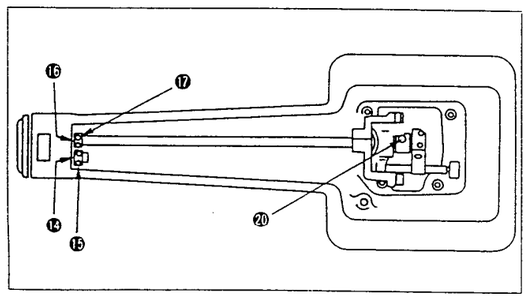


2. Turn the handwheel until shuttle driver ⑬ is brought to the position where shuttle race back ⑫ comes off. Then replace the shuttle race back.



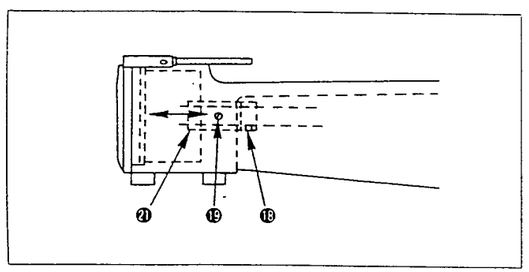
★ Clearance between the needle and the shuttle driver

The clearance between the needle and the needle guide of the shuttle driver has already been adjusted to the range of 0 through 0.05 mm.

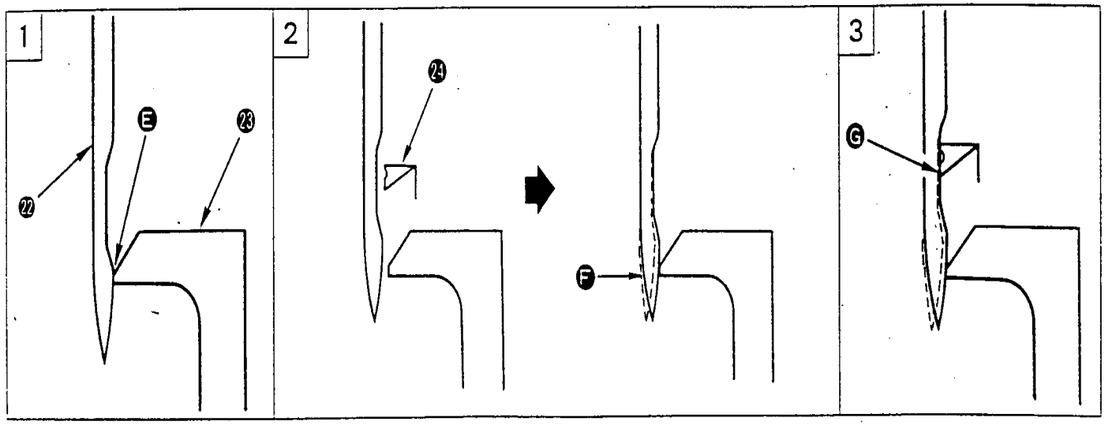


To adjust the clearance between the needle and the shuttle driver:

1. Loosen two screws ⑮ , and remove thrust collar ⑭ of the feed rock driving shaft on the feed bracket.
2. Loosen two screws ⑰ , and move thrust collar ⑯ of the feed rock shaft.
3. Loosen two screws ⑱ in the shuttle driving shaft thrust collar, screw ⑲ in the shuttle driving shaft front bushing and small pendulum clamping screw ⑳ .



4. Adjust the clearance by moving shuttle driving shaft front bushing ㉑ to the left and right.
5. After the adjustment has been completed, secure the shuttle driving shaft thrust collar and the small pendulum, making sure there is no axial play of the shuttle driving shaft.
6. Finally, secure the respective thrust collars, making sure there is no play in the feed driving shaft and the feed rock shaft.



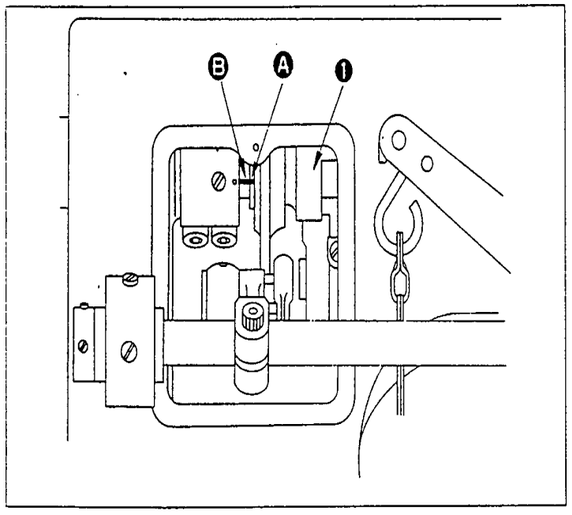
[The standard for adjusting the clearance between the needle and the blade point of the shuttle]

Use a standard Schmetz 794-Nm230 needle.

1. Adjust the clearance Ⓔ between the convex section of needle ㉒ and shuttle driver ㉓ to 0.
2. Align the needle center with the blade point of shuttle ㉔ and press the Ⓕ section of the needle against the shuttle driver.
3. Adjust the clearance Ⓖ to a minimum, with the needle pressed against the shuttle driver, making sure that the needle does not contact the blade point of the shuttle.

* By this adjustment the needle-to-shuttle blade point clearance will be 0.25 ∼ 0.35 mm.

15. THE FEED DOG-TO-NEEDLE RELATIONSHIP



The standard timing between the feed dog and the needle is obtained when the feeding motion starts at the same time when the needle starts descending from its highest dead point.

★ **To adjust the timing between the feed dog and the needle, follow the procedure stated below.**

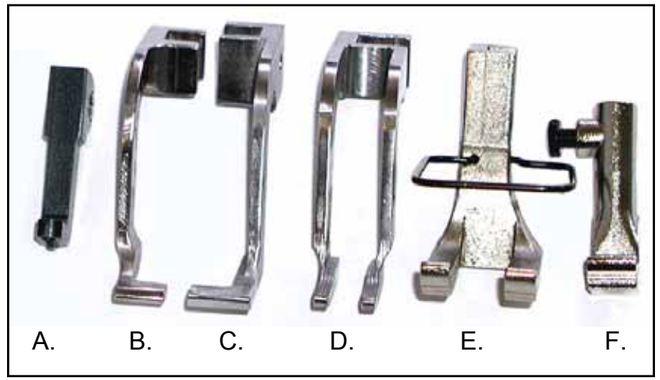
1. Loosen the two screws in feed eccentric cam ❶ .
2. Align marker line Ⓐ engraved on the side plate of the feed eccentric with marker line Ⓑ engraved on the main shaft to obtain the standard timing.
3. After the adjustment, securely tighten the two screws in the feed eccentric cam.

The above adjustments are for stitching normal fabrics and do not apply to stitching heavy leathers for the TORO-3000 or 4000 R. Leather machines are specially adjusted for each application. The standard adjustments are only a starting point.

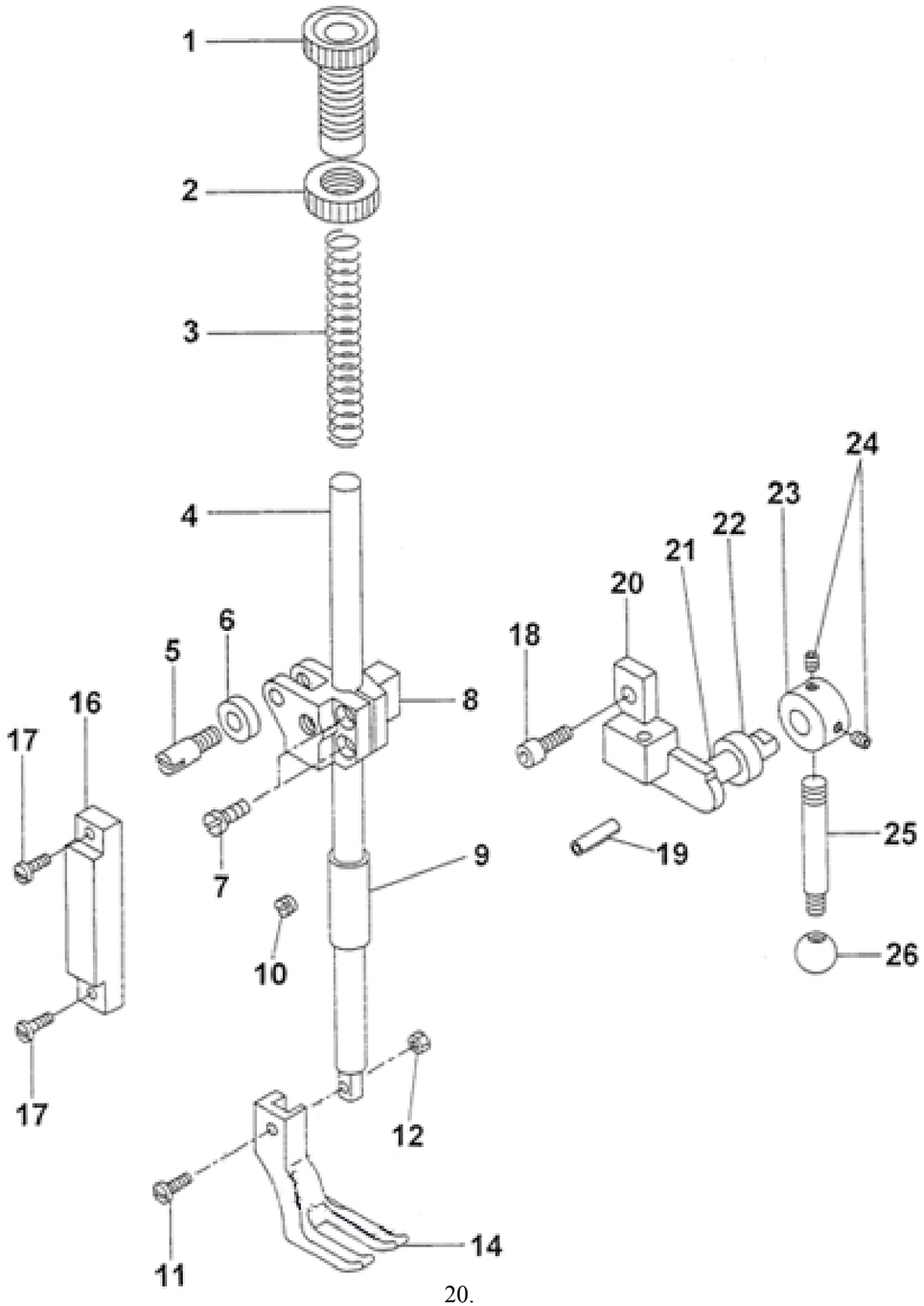
4.

REF.NO.	PART NO.	DESCRIPTION	ANT.
1.	210-50703	SCREW	1
2.	210-51305	NUT	1
3.	210-50802	SPRING	1
4.	210-50505	PRESSER BAR	1
5.	210-51800	GUIDE NUT	1
6.	210-51701	ROLLER FOLLOWER	1
7.	SS-6121210-SP	SCREW 3/16-28 L=12	2
8.	210-95005	PRESSURE BAR	1
9.	210-50604	PRESSER BAR BUSHING	1
10.	SS-8150410-SP	SCREW 15/64-28 L=4	1
11.	SS-7091410-SP	SCREW 9/64-40 L=13.5	1
12.	NS-6090310-SP	NUT 9/64-40	1
14.	210-95104	OUTSIDE PRESSER FOOT WITH TEETH FOR FABRICS	1
16.	210-51503	GUIDE PLATE	1
17.	SS-7621040-SP	SCREW 3/16-32 L=9.5	2
18.	SS-6660622-TP	SCREW	1
19.	PS-0300201-KP	SPRING PIN 3.0X20	1
20.	210-51008	HAND LIFTER LINK	1
21.	210-51107	HAND LIFTER CAM	1
22.	B1662-562-000	COLLAR	1
23.	210-51602	THRUST COLLAR	1
24.	SS-8660522-TP	SCREW 1/4-40 L=4.5	2
25.	210-51206	HAND LIFTER LEVER	1
26.	210-51404	GRIP	1

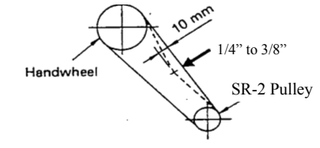
A.	43423	Center Grover Leather Presser Foot
B.	43424	Left Side Leather Presser Foot
C.	43425	Right Side Leather Presser Foot
D.	43426	Double Toe Leather Presser Foot
E.	43405	Double Toe Presser Foot with Teeth for Fabric or Webbing (aka Blanket)
F.	43406	Center Presser Foot with Teeth for Fabric or Webbing (aka Blanket)



4. PRESSER BAR COMPONENTS



16. PROBLEMS WITH SEWING AND CORRECTIVE MEASURES

Problem	Cause	Corrective measures
1. The thread breaks or tends to fray and then break.	1. A burr, cut, ruffness, or other imperfection was created on the needle plate, shuttle, shuttle race or presser foot by a broken or damaged needle. 2. Needle thread tension excessively tight. 3. Poor quality or incorrect thread size. 4. Machine is out of synchronization. 5. Excessive needle heat build-up.	1. Clean off and remove the flaw with a fine India stone or other abrasive. 2. Loosen the upper thread tension. 3. Always use a good quality pre-lubricated left twist sewing thread like “Rice” brand threads. 4. Check and if necessary re-time the machine. 5. Add an additional silicone thread lubrication system to your machine. 6. Replace your needle with a new “Schmetz” brand quality sewing needle.
2. Skipped Stitches	1. The needle is too far away from the shuttle hook point. 2. The shuttle hook timing is set too fast or too slow in relationship to the needle. 3. The leather or fabric “jumps” up with the Needle. (called flagging) 4. Bent needle, dull point, or improper needle diameter size for the leather sewn. 5. The check spring tension is too hard or too soft. 6. The check spring travel is too long or too short for the fabric sewn. 7. The needle has overheated, lost temper or is dull or worn out. 8. Excessive thread fraying or wear.	1. See Chapter 14, Adjusting the Needle-to-Shuttle Relationship. 2. See Chapter 14, Adjusting the Needle-to-Shuttle Relationship. 3. Tighten the presser bar adjuster screw. 4. Replace with a new and correctly sized needle. 5. Decrease the check tension. 6. Adjust the check spring travel for the weight of the fabric or leather being sewn. 7. Replace the needle with a Schmetz brand #794 Needle Inferior quality needles cause problems. 8. Replace poor quality thread with RICE or Artisan “Premium Performance Leather Stitching Thread” from Artisan Sewing Supplies. 888 838 1408
3. Improper thread tension, irregular looking stitches, or excessive bobbin thread tension.	1. Worn out thread guides. 2. The bobbin jams. 3. Weak bobbin thread tension. 4. Bobbin thread is wound to tightly. 5. Bobbin thread showing on top of fabric or leather 6. Loops showing on the bottom of the leather or Fabric.	1. Repair the guide or replace with a new thread guide. 2. The bobbin may be bent or otherwise damaged. Replace the bobbin. 3. Tighten the bobbin thread tension, Chapter 9 4. Loosen the tension on the bobbin winder 5. Loosen the Needle Thread Tension, Chapter 9 6. Tighten the needle thread tension, Chapter 9
4. Excessive Thread Abrasion	1. Worn out or Incorrect needle size	1. Replace the Needle
5. Stitches are out of line or do not track straight.	1. Incorrect point for the leather being sewn. 2. Dull or blunt needle point.	1. Replace your needle with one with the correct cutting point for the type of leather being sewn. Read and understand the Schmetz Leather Needle Pamphlet available from Artisan 888 838 1408
6. The bobbin thread tension will not adjust.	1. Lint or debris trapped under the bobbin case spring tension.	1. Remove the bobbin case spring and clean out the Debris.
7. The v-belt from the SR-2 speed controller is slipping or the hand wheel does not turn when the motor is fully engaged	1. The v-belt has stretched. 2. The v–belt is worn out 3. The machine is jammed. **When in doubt.... Call ARTISAN® for Help! 888-838 1408**	1. Lower the SR-2 Speed controller. Make the belt tension tighter. 2. Replace the v– belt 3. Clean out the foreign blockage. Perhaps a small piece of thread is trapped in the shuttle raceway. 

SUGGESTED
REFERENCE GUIDE FOR
ARTISAN® TORO 3000, 4000 R, 4000 P
LEATHER STITCHING MACHINES
Recommended Schmetz brand Needle #794

1. Sewing on Thin Leathers of less than 8 oz. or up to1/8":
   Use Schmetz brand Needles number 794 D or S, NM:160 Size 23, Canu 53:20MF1.
   "D" is a Triangle Leather Point and "S" is a Spear Point for leather.
   Under normal conditions the "D" points will last longer and the "S" point needles have a shorter life span but will make a straighter stitch.
   We recommend using thread sizes 69, 138, or 207. Size 277 might be to heavy.
   The same size thread as in the needle or one size smaller for the bobbin thread will give you more yield from the bobbin.
2. Stitching Leathers from 8 oz. to 12 oz or from 1/8" to 3/16":
   Use Schmetz brand Needles number 794 D or S, NM:160 or 180, Size 23 or 24, Canu 53:20MF1.
   "D" is a Triangle Leather Point and "S" is a Spear Point for leather.
   We recommend using thread sizes 138, 207, or 277 and either the same size thread as in the needle or one or two sizes smaller thread in bobbin is recommended.
3. Leather from 12 oz to 16 oz., 3/16"' to 5/16":
   Use Schmetz brand Needles number 794 D or S, NM:180 or 200, Size 24 or 25, Canu 53:20MF1.
   We recommend using thread sizes 207, 277, or 346 and either same size thread as in the needle or one or two sizes smaller thread in bobbin for additional yield.
4. When stitching multiple plies of Leather beyond 7/16," we recommend the use of Schmetz brand 794 "D" point needle of at least a diameter of #25 (200). Any size thread may be used. However, the use of 207, 277, or 346 is recommended in the needle and one or two sizes smaller thread in the bobbin.

NOTE:
Your Bobbin Thread tension will require readjustment when using smaller thread diameters such as size 69 or 138 in the bobbin.

SADDLE SKIRTING: 794 D #25 (200) Needle
Thread 277 or 346 in the Needle
138, 207, OR 277 in the Bobbin

HARNESS: 794 D #24 (180) or #25 (200) Needle
Thread 207, 277, or 346 in the Needle
138, 207 or 277 in the Bobbin

HOLSTERS: 794 D #25 (200) NEEDLE
Thread 207 or 277 in the Needle
138, 207 or 277 in the Bobbin

SHEATHS: 794 D #24 (180) or #25 (200) Needle
Thread 207, 277, or 346 in the Needle
138, 207, 277 in the Bobbin

CHAPS: 794 S #24 (180) Needle
138 or 207 in the Needle
138 or 207 in the Bobbin

BELTS: 794 D #24 (180) Needle
Thread 138 or 207 in the Needle
138 or 207 in the Bobbin

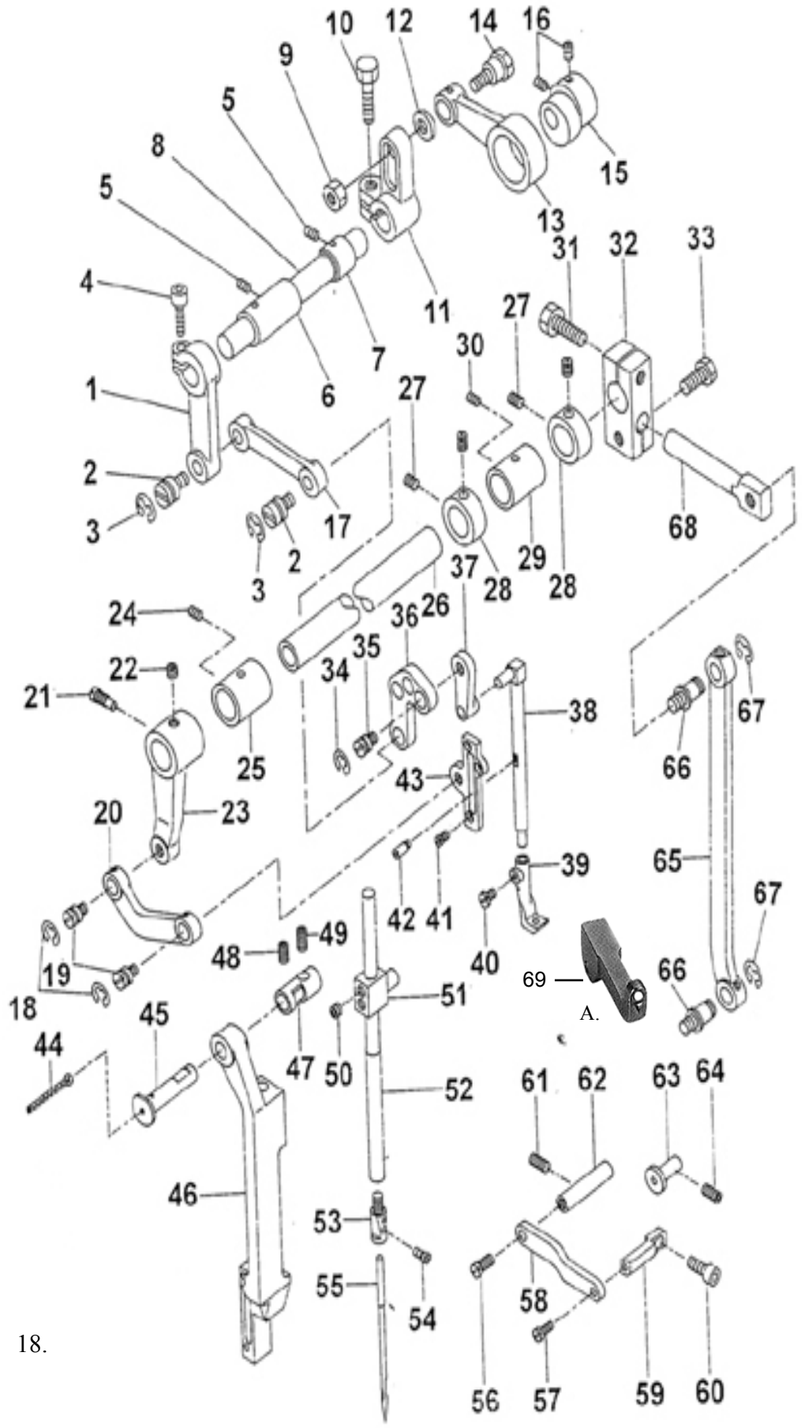
PURSES: 794 D #24 (180) Needle
138 or 207 in the Needle
138 or 207 in the Bobbin

MENUS, CHECKBOOKS, BOOK JACKETS, etc
Round Point Needles 794 #22 (140)
Thread 69 or 138 in the Needle and Bobbin.

NOTE:
Change your needle to a non leather point needle when stitching fabrics other than leather.
ARTISAN recommends using a Schmetz brand #794 size 22, 23, or 24 needle on Canvas, Upholstery Fabrics, or Webbing. For Stitching "Bio-Plastics" use a needle 2 diameters larger than for leather. You must replace the leather presser feet, feed dog and needle plate with a "Blanket Set" for stitching on other than leather.

3

REF. NO.	PART NO.	DESCRIPTION	ANT.
1	210-49408	DRIVING SHAFT ARM FRONT	1
2	210-48707	HINGE SCREW	2
3	RE-0800000-00	E-RING	2
4	SM-6061552-TP	SCREW M6 L-15	1
5	SS-8150710-SP	SCREW 15/64.28 I=7	2
6	210-49705	BUSHING, FRONT	1
7	210-49804	BUSHING, REAR	1
8	210-49606	FEED ROCKER SHAFT	1
9	NS-6720440-SP	NUT 11/32-28	1
10	SS-9201813-CP	SCREW 5/46-18 I=18	1
11	210-49507	DRIVING SHAFT ARM, FRONT	1
12	210-50109	WASHER	1
13	210-49309	CONNECTING ROD	1
14	210-50000	HINGE SCREW	1
15	210-49200	DRIVING CAM	1
16	SS-8660610-TP	SCREW 1/4-40 L=6	2
17	210-49903	ROD	1
18	RE-0800000-KO	E-RING	2
19	210-48707	HINGE SCREW	2
20	210-93000	FRAME DRIVING LINE	1
21	SS-7151550-SP	SCREW 15/64-28 L=14.5	1
22	SS-8660512-TP	SCREW 1/4-40 L=5	1
23	210-92804	DRIVING SHAFT FRONT ARM	1
24	SS-8150710-SP	SCREW 15/64-28 L-7	1
25	210-92606	DRIVING SHAFT FRONT METAL	1
26	210-92507	DRIVING SHAFT	1
27	SS-8660810-TP	SCREW	4
28	CS-1801211-SH	THRUST COLLAR D-18 M-12	2
29	210-92705	DRIVING SHAFT REAR METAL	1
30	SS-8150710-SP	SCREW 15/64-28 I=7	1
31	SS-9202443-CP	SCREW 5/16-18 L=24	1
32	211-61609	DRIVING SHAFT REAR ARM A	1
33	SS-9201813-CP	SCREW 5/16-18 L=18	1
34	RE-0800000-KO	E-RING	2
35	210-48707	HINGE SCREW	2
36	210-93901	L LINK	1
37	210-94008	UPPER FEED FRAME DRIVING LINK	1
38	210-94701	UPPER FEED BAR	1
39	210-94107	PRESSURE FOOT	1
40	SS-7110840-SP	SCREW 11/64-40 L=7, 8	1
41	SS-7110540-SP	SCREW 11/64-40 L=5	3
42	210-94800	UPPER FEED BAR PIN	1
43	210-94909	UPPER FEED BAR GUIDE	1
44	CQ-2020000-00	OIL WICK	1
45	210-91406	FRAME DRIVING BASE SHAFT	1
46	210-92101	FRAME DRIVING BASE	1
47	210-93505	FRAME DRIVING BASE SHAFT METAL	1
48	D2446-141 E00	METAL SCREW	1
49	SM-8061212-TP	SCREW M6X12	1
50	SS-8660522-TP	SCREW 1/4-40 L=4.5	2
51	210-92309	NEEDLE BAR CONNECTION	1
52	210-92002	NEEDLE BAR	1
53	210-92408	NEEDLE STOPPER	1
54	SS-6110710-TP	SCREW 11/64-40 L=6.5	1
55	MC-5320023-00	NEEDLE (7 794- NM=230)	1
56	SS-7151120-SP	SCREW 15/64-28 L=11	1
57	SS-7111120-SP	SCREW 11/64-40 L=10.5	1
58	210-92200	PRESSURE PLATE	1
59	210-93208	PRESSURE PLATE	1
60	SM-6061552-TP	SCREW M6 L=15	1
61	SM-8061212-TP	SCREW M6X12	1
62	210-93307	PRESSURE SHAFT	1
63	210-93604	FRAME DRIVING BASE GUIDE	1
64	SM-8061212-TP	SCREW M6X12	1
65	211-61807	FRAME DRIVING ROD	1
66	B1424-158-000	HINGE SCREW	2
67	RE-0700000-KO	E-SHAPED SNAP RING (704)	2
68	211-61708	DRIVING SHAFT REAR ARM B	1
69	43423	INSIDE LEATHER STITCHING PRESSER FOOT	1



18.

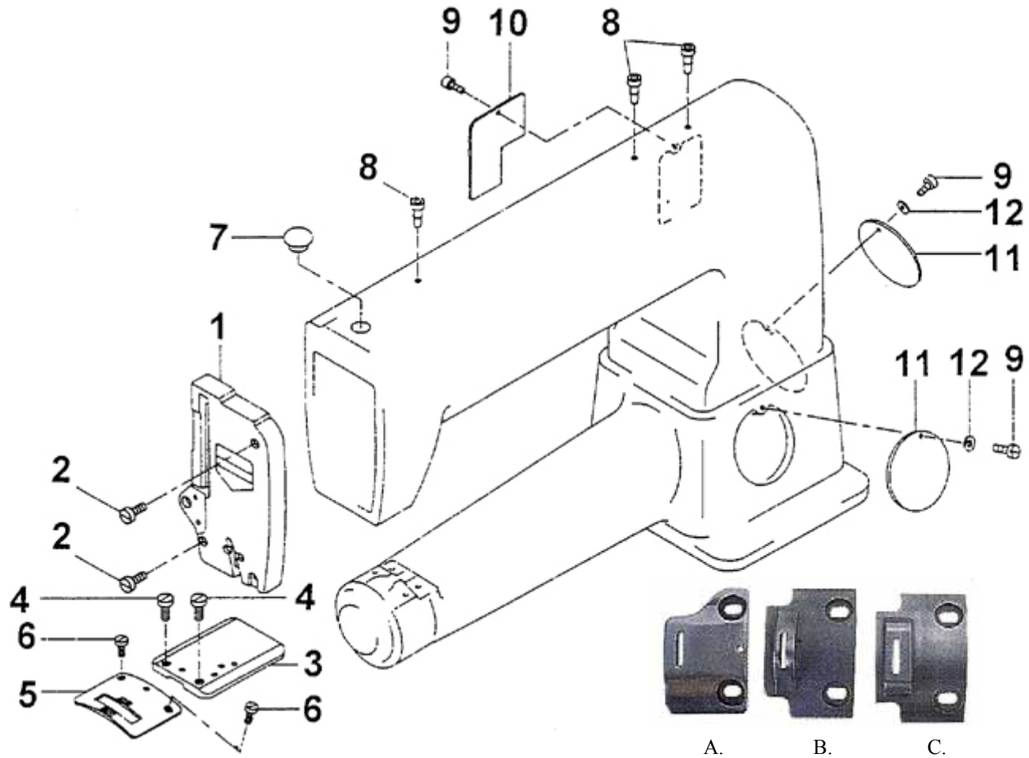
Spare Parts List

ARTiSAN®

TORO-3000 and TORO-4000

15.

1. FRAME AND COVER COMPONENTS

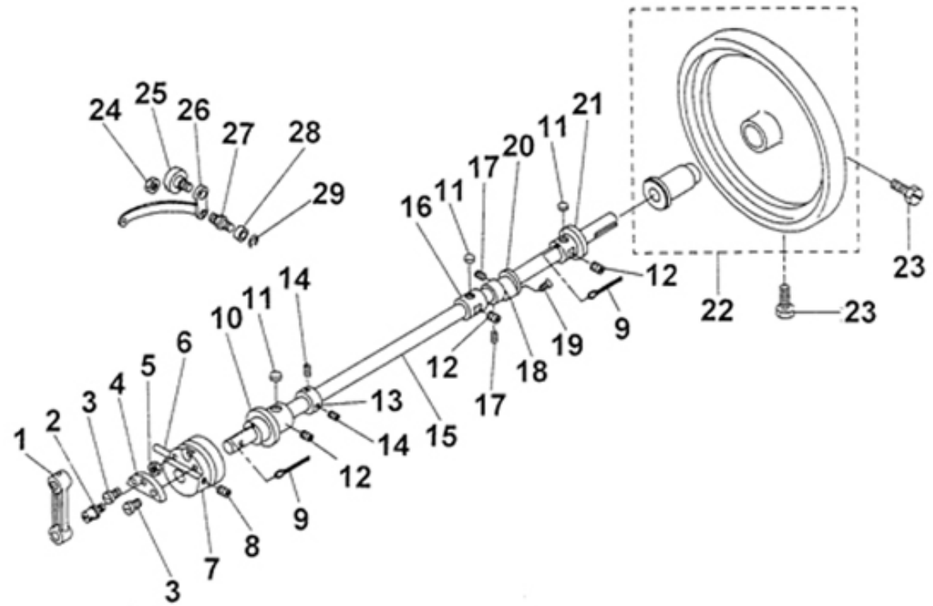


A. 43332 Slotted
B. 43333 Stirrup
C. 43334 Holster

NEEDLE PLATES FOR LEATHER STITCHING

REF.NO.	NOTE	PART NO.	DESCRIPTION	ANT.
1.		210-90253	FACE PLATE ASM.	1
2.		SS-6151920-SP	SCREW 15/64-28 L=19.0	2
3.		211-51006	SLIDE PLATE	1
4.		SS-7111110-TP	SCREW 11/64-40 L=10.5	2
5.		211-60205	NEEDLE PLATE	1
6.		SS-7120910-SP	SCREW 3/16-28 L=9	2
7.		TA-1250406-RO	ROBBER PLUG	1
8.		B1156-026-000	OIL PIPE	3
9.		SS-7090710-SP	SCREW 9/64-40 L=6.8	3
10.		211-60106	SIDE COVER B	1
11.		211-33004	SIDE COVER	2
12.		WZ-0430390-KP	WASHER	2

2. MAIN SHAFT COMPONENTS



REF.NO.	NOTE	PART NO.	DESCRIPTION	ANT.
1.		210-91707	CRANK ROD	1
2.		210-45604	NEEDLE BAR CRANK SHAFT	1
3.		SS-1681140-SP	SCREW 9/32-28 L=11	2
4.		210-45109	CRANK PLATE	1
5.		NS-6680410-SP	NUT 9/32-28	1
6.		PT-0405600-SH	TAPER PIN	1
7.		210-44904	THREAD TAKE-UP CAM	1
8.		SS-8660612-TP	SCREW 1/4-40 L=6.0	2
9.		CQ-2020000-00	OIL WICK	0.2
10.		210-44607	MAIN SHAFT BUSHING, FRONT	1
11.		210-45406	FELT	3
12.		SS-8151550-SP	SCREW 15/64-28 L=15	3
13.		210-45703	THRUST COLLAR	1
14.		SS-8660610-TP	SCREW 1/4-40 L=6	2
15.		210-44508	MAIN SHAFT	1
16.		210-44706	MAIN SHAFT BUSHING, CENTER	1
17.		SS-8150710-SP	SCREW 15/64-28 L=7	2
18.		211-51402	FEED CAN	1
19.		SS-2110915-SP	SCREW 11/64-40 L=6.8	2
20.		210-45505	SIDE PLATE	1
21.		210-44805	MAIN SHAFT BUSHING, REAR	1
22.		210-40555	HEND WHEEL ASN.	1
23.		SS-9702110-SP	SCREW	2
24.		NS-6680410-SP	NUT 9/32-28	1
25.		SD-1070901-TP	HINGE SCREW	1
26.		210-91806	THREAD TAKE-UP LEVER	1
27.		210-46305	ROLLER STUD	1
28.		105-19502	ROLLER	1
29.		RE-0400000-KO	E-RING	1